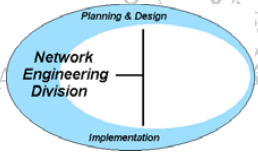
United States Department of Agriculture

Office of the Chief Information Officer
Telecommunications Services and Operations
Network Engineering Division



PROJECT PLAN

Network Engineering Services Support for the Foundation Financial Information System Project

April 23, 1999

NETWORK ENGINEERING DIVISION
Project Management Plan

INTRODUCTION

The mission critical programs of USDA Agencies and Offices are aimed at meeting the diverse, complex set of services required by American and international private, business, educational, and government communities. To satisfy increasing demands, USDA relies heavily on the latest information technologies. Critical to the successful implementation and management of this technology is the development of a structured methodology for measuring, analyzing, and optimizing information transfer. The Network Engineering Division, part of Telecommunications Services and Operations/Office of the Chief Information Officer, has developed and documented such a process called Resource Planning Methodology.

> **By 2000, 75 percent of network design processes without a full characterization of applications will fail (0.8 probability).**
>
> —Gartner Group, Understanding Applications Leads to Network Savings**,** Service: Enterprise Network Strategies, Date: 4 February 1999, Document # CS-06-7980

Resource Planning Methodology is a structured approach to manage objectively and reliably a dynamic network technology infrastructure. It requires understanding the existing network performance and survivability and new business application features in addition to an ability to predict the effects on the existing network infrastructure upon implementation of the new business application. This project plan addresses the application of the Resource Planning Methodology to the implementation of the Foundation Financial Information System managed by the Chief Financial Officer.

PURPOSE/SCOPE

A memorandum of understanding (MOU), defining an agreement between the USDA Chief Financial Officer (CFO) and the Chief Information Officer (CIO) has been approved. The agreement provides for the CFO to use the staff and resources of the Telecommunications Services and Operations, Network Engineering Division to assist in the deployment of the Foundation Financial Information System (FFIS).

This agreement is limited to the use of the Network Engineering Division (NED) staff and resources through the end of Fiscal Year 1999 or earlier, as deemed necessary by the CFO. The work shall be limited to telecommunications issues and problems. If the effort requires additional work beyond the current fiscal year, a new agreement will be executed.

The CFO has identified six telecommunications and telecommunications related areas for the NED to address. These areas are:

- IP access and access security
- technical information support to FFIS contractors
- analysis of the FFIS application network requirements

- assistance in defining and developing service level agreements
- recommendations for a service level agreement performance monitoring process
- recommendations for standards.

The specific tasks, milestones, and deliverables are described below. The plan will be subject to approval by both CIO and CFO representatives. The NED will have full authority and funding to execute the approved project plan without further approvals and/or waivers being necessary.

ASSUMPTIONS AND CONSTRAINTS

The following assumptions and constraints were identified during the needs identification and plan preparation activities. Specification of timeframes, resources requirements, and associated deliverables are based, in part, upon these items. Changes in assumptions and/or failure to adhere to these items constitute a changed condition/requirement and require reassessment of the project plan. All "changed conditions/requirements" will be documented and the resulting modifications to this project plan will initiate a new project plan version.

- Approval of this project plan, under the terms of the MOU, constitutes the granting of an Information Technology (IT) Waiver for the full execution of this project as documented, including all associated resources as identified in the section titled "FURNISHED RESOURCES" .
- Approval of this project plan, under the terms of the MOU, constitutes the assignment of Network Engineering Division personnel resources and delegation of authority to acquire additional resources as identified in the section titled "FURNISHED RESOURCES" .
- "Changed conditions/requirements" deemed necessary to the successful implementation of the Foundation Financial Information System (FFIS) may be approved, within the scope of this plan, by the FFIS Infrastructure Manager and the NED Project Manager.

ROLES AND RESPONSIBILITIES

The organization and composition of the FFIS Telecommunications Collaboration Team is depicted in Figure 1. The Team is comprised of staff from the National Finance Center (NFC), the National Information Technology Center (NITC), the NED, and the FFIS Infrastructure Manager. Each member of the Team has specific support responsibilities for the FFIS Project. This document describes **only** the project plan for the NED support responsibilities. Specific points of contact and team membership are identified in the **CONTACTS** section.

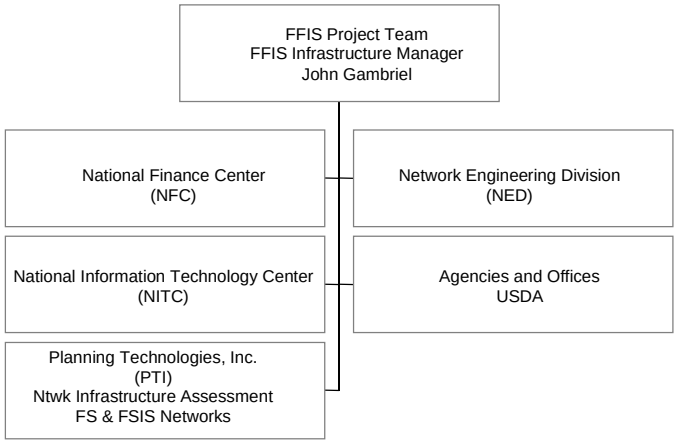


Figure 1 FFIS Telecommunications Collaboration Team

STATEMENT OF WORK – NETWORK ENGINEERING DIVISION

Task 1.0 — Initiate Project

Task 2.0 — Complete development and approval of the NED Project Management Plan

Task 3.0 — Identify FFIS Application Security Requirement

Sub-Task 3.1 Obtain FFIS Documentation

Description: Identify and obtain copies of all pertinent FFIS project documentation.
Deliverable: Establish a common shared information project library as a reference source for NED personnel.

Sub-Task 3.2 Research Other Related Documentation

Description: Identify and obtain copies of all related documentation from other Agencies and Private Sector Companies.
Deliverable: Establish a common shared information project library as a reference source for NED personnel.

Sub-Task 3.3 Finalize FFIS Application Security Requirements

Description: Analyze and consolidate the security requirements found in Sub-Tasks 3.1 and 3.2 and produce a cohesive set of requirements. Obtain concurrence from the FFIS project office.
Deliverable: Prepare a document describing the security requirements for the FFIS application.

Task 4.0 — Develop Internet Protocol (IP) Security Access Methods

Sub-Task 4.1 Develop Evaluation Criteria for IP Security Access Method

Description: Identify, document, and approve the technical criteria used to evaluate the access mechanisms to the FFIS application at NFC. These criteria are based on security requirements, performance of the network requirements, and existing NFC gateway constraints. The criteria will be quantitative wherever possible.

Deliverable: A report focusing on an evaluation matrix showing security requirements, costs, vendor provided performance overheads, and other appropriate criteria.

Sub-Task 4.2 Develop Draft List

Description: Prepare a list of potential access method solutions that may satisfy security access method criteria. This list will be assembled from input provided by all organizations participating in the project (NFC, NITC, FFIC Program office, and NED).

Deliverable: The deliverable is a document listing potential solutions including products and vendors.

Sub-Task 4.3 Establish Candidate List of Access Methods

Description: Prepare a list of access method solutions for evaluation in the test lab. This list will be created by reducing the number of candidates in the draft list prepared in Sub-Task 4.2 based on the Evaluation Criteria developed in Sub-Task 4.1.

Deliverable: Provide a document describing a reduced list of candidate solutions to be evaluated in the test lab.

Sub-Task 4.4 Develop Test Lab

Description:

a. Develop hardware and software requirements for test lab
b. Purchase hardware and software
c. Install and configure hardware and software
d. Obtain copies of security products that meet the criteria established in section 4.1

Deliverable: A test lab set up to test and evaluate the security products selected in Section 4.3 of this Statement of Work.

Sub-Task 4.5 Test and Evaluate Security Access Method Candidates

Description: For the Security Access Method candidates listed in Sub-Task 4.3, test and evaluate each.

Deliverable: Prepare a report evaluating the security access method candidates based on the results of Sub-Task 4.4.

Sub-Task 4.6 Impact Analysis

Description: Measure and evaluate the performance impacts of the candidates. Initial extrapolation of the number of transactions with their associated security overhead will be made on the final links into the FFIS processing center.

Deliverable: A report showing the security overhead as a measure of overhead to total bytes per packet.

Sub-Task 4.7 Develop Acquisition Vehicles

Description: Identify possible means and time frames to acquire security products. Identify contracts and/or establish contact with appropriate staff. Develop requirements, evaluation and selection criteria if competition is necessary.

Deliverable: The deliverable is a document describing how to acquire the products identified for deployment. It includes contact information, estimated time frames, and costs.

Sub-Task 4.8 Finalize Access Methods

Description: Prepare a final list of access method solutions accompanied by supporting analysis based on the work done in sub-tasks 4.1 through 4.7.

Deliverable: A document listing the acceptable Internet Protocol (IP) Security Access Methods for the FFIS application. The document will contain information needed for USDA Agencies to make an informed selection of the method to be used to support their use of FFIS.

Task 5.0 — Develop Agency Network Security Certification Procedure

Sub-Task 5.1 Obtain Other Agency Certification Procedures

Description: Perform an Agency search to identify Certification Procedures that have been developed.

Deliverable: Establish a library of reference documentation containing Certification Procedures created and used by other Agencies.

Sub-Task 5.2 Develop Draft Certification Procedures

Description: Design a set of certification procedures and processes that audit and measure the security implementations required for the deployment of FFIS.

Deliverable: A document of possible certification procedures and processes.

Sub-Task 5.3 Finalize Certification Procedures

Description: Select the "best" set of certification procedures that meet the requirements and constraints of the FFIS program office.

Deliverable: Prepare a document describing the certification procedure and process.

Task - 6.0 - Conduct Network Baseline Analysis

Sub-Task 6.1 Develop FS and FSIS Network Baseline

Description: Gather and maintain network traffic data representing the existing FS and the FSIS agency networks.

Deliverable: Conduct a network baseline study of the FS and FSIS networks. Using Baseline, sniffer, and network probes, accumulate sufficient data to create a reliable network traffic inventory.

Sub-Task 6.2 Deliver Current Baseline to PTI

Description: Deliver the FS and FSIS network traffic inventory to PTI.

Deliverable: Deliver the network traffic inventory for FS and FSIS to PTI.

Sub-Task 6.3 Install & Maintain Network Monitoring Equipment

Description: Coordinate installation and manage the network sniffers and probes on the existing FS and the FSIS networks.

Deliverable: Inventory of "sufficient" amount of FS and FSIS network traffic data for analysis.

Sub-Task 6.4 Develop Year 2 Baseline

Description: Gather and maintain network traffic data for the Year 2 agency networks.

Deliverable: Inventory of "sufficient" amount of Year 2 agency network traffic data for analysis.

Task 7.0 — Conduct Network Applications Impact Assessment

Sub-Task 7.1 Collect Demographic Data

Description: Obtain data correlating the class of users distributed across the country with the quantity and kind of transactions. This data will be used to simulate the network impacts of the FFIS implementation.

Deliverable: Collect FS and FSIS traffic demand data to populate an applications database. The database is subsequently input for the NetMaker® XA network analysis tool.

Sub-Task 7.2 Develop Application Profile

Description: Produce the application profile categorizing different classes of users. Users may be classed as accountants (power users) or managers (casual users). Required data includes packets sent/received, bytes sent/received, transaction rates, and others based on the class of user. The PTI contractor may produce these profiles.

Deliverable: The developed Application Profile(s) will be loaded into Application Database, which serves as Demand Profiles input to Make Systems NetMaker product.

Sub-Task 7.3 Simulate Application Deployment

Description: Simulate the implementation of the FFIS application using a network based on the planned dates.

Deliverable: Prepare a report presenting the potential impacts to the network, potential bottlenecks to FFIS usage, and recommendations for mitigating the bottlenecks to FFIS.

Sub-Task 7.4 Verify Results of Simulation of Measured Data

Description: Use the data and information captured during the service level agreement tasks (Task 8.0) and baseline tasks (Task 6.0) to evaluate the simulation of the network impacts from Sub-Task 7.3

Deliverable: Prepare an internal working document showing predicted versus actual traffic loads and delays.

Task 8.0 — Develop Service Level Management Process

Sub-Task 8.1 Develop Evaluation Criteria

Description: Identify the important criteria in the selection of a Service Level Management (SLM) system.

Deliverable: Prepare a document describing the SLM selection criteria and their evaluation method.

Sub-Task 8.2 Test and Evaluate Measurement Tools

Description: Identify all project measurement requirements and conduct a market survey identifying all necessary tools.

Deliverable: Prepare a report documenting test results and deployment recommendations.

Sub-Task 8.3 Develop Measurement System

Description: Develop and document the process for demographic data (Section 7.1). This includes the use and deployment of any tools.

Deliverable: A document describing the measurement and validation process for collecting demographic data.

Sub-Task 8.4 Develop Performance Metrics

Description: Identify the important variables, their required values or ranges, and how they can be measured.
Deliverable: Prepare a document describing the variables and values to be included in the service level agreement (SLA).

Sub-Task 8.5 Develop the Service Level Agreement

Description: Write the draft SLA between the FFIS office and the Agencies.
Deliverable: A Draft Service Level Agreement that describes the roles, responsibilities, metrics, and penalties between FFIS and the Agencies.

Task 9.0 — Complete Project Closure

Task Order Start and Completion Dates

Performance of the effort required to complete the tasks commenced on April 6, 1999, and is expected to end no later than **November 30, 1999,** unless extended by the CFO through formal, written notification to the CIO.

ID	Task Name	Planned Duration
1	**1 Initiate Project**	**3 days**
2	1.1 Project Start	0 days
4	**2 Complete Development & Approval of Ntwk Engr Svrcs PMP**	**164 days**
11	2.7 PMP Approved	0 days
14	2.10 MOU and Outyear PMP Approved	0 days
16	**3 Identify FFIS Application Security Requirement**	**17 days**
20	3.4 FFIS Application Security Rqmt Complete	0 days
21	**4 Develop Internet Protocol Security Access Methods**	**107 days**
25	4.4 Candidate List Established	0 days
36	4.10 Access Methods Finalized	0 days
37	**5 Develop Agency Network Security Certification Procedure**	**37 days**
41	5.4 Network Certification Procedure Complete	0 days
42	**6 Conduct Network Baseline**	**143 days**
47	6.5 USDA Network Baseline On-going	0 days
48	**7 Conduct Network Applications Impact Assessment**	**152 days**
53	7.5 Application Impact Assessment Complete	0 days
54	**8 Develop Service Level Management Process**	**142 days**
60	8.6 Service Level Agreement Complete	0 days
61	**9 Project Closure**	**10 days**
63	9.2 Project Complete	0 days

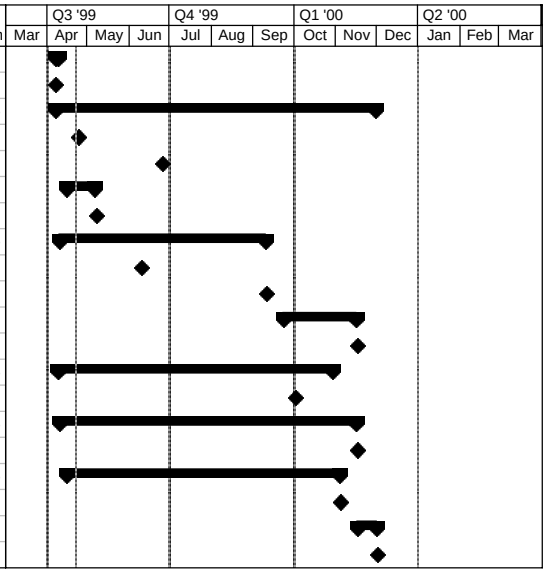


Figure 2 Project Gantt Chart

Deliverables and Due Dates

Specific deliverable due dates for each task are subject to change. Dates are dependent on the actual progress of the project and on the extent and impact of FFIS Telecommunications Collaboration Team (Project Team) comments to draft reports.

PERFORMANCE STANDARD

All deliverables shall be due as specified. The FFIS Project Team will review each deliverable within **10 days** of receipt. The FFIS Project Team will comment and may require modification clarifications and/or additions. The revised document(s) will be due within **10 days** of notification of the required changes. In addition, the Network Engineering Division will provide an oral report to the FFIS Project Team with each deliverable as requested.

Weekly project status reports will be submitted to the FFIS Infrastructure Manager depicting the current progress on project tasks and identifying any issues related to the project.

All drafts, status reports, and final documentation shall be prepared using Microsoft Word 97, Microsoft PowerPoint 97, and Microsoft Project 98. One hard copy original, two copies and one electronic version of each deliverable document shall be submitted to the FFIS Project Team point of contact as delineated below.

FURNISHED RESOURCES

The CIO will direct Agencies/Offices of the USDA to provide Wide Area Network access sufficient to support the auto-discovery and traffic analysis requirements at USDA facilities and pertinent information/documentation sources as required to perform under this task.

Funding for staff, travel, and existing NED contract support will be provided by the OCIO. Specifically, this funding shall be through the existing working capital fund NED authorized spending ceiling. Any additional contract support, project specific hardware and software, and any other distinct project costs shall be funded by the OCFO.

The NED will provide the Make Systems' modeling software, NetMaker XA and support equipment necessary to perform the analysis of the USDA data networks, within the time frame of the action plan, at USDA facilities.

Project Resources

Table 1 depicts a resource matrix. Its function is to identify the personnel resource requirements and associated skills needed to support this project. Table 1 also identifies personnel resource availability and shortfall requirements.

Resource Name	Organization	Planned Work in Hours	Existing FTE	Additional FTE Requirement
Project Manager	NED	696	0.42	
Technical Task Leader	NED	1114	0.68	
Senior Network Analyst/Planner	NED or Contract	924		0.56
Senior Network Engr/Architect (vice JGavin)	NED or Contract	723		0.44
Network Systems Analyst	NED or Contract	2966	0.94	0.86
Systems Analyst	Contract	892	0.54	
Technical Editor	Contract	1079	0.65	

FFIS Infrastructure Manager	OCFO/FFIS	100	0.06	
FFIS Subject Matter Expert	OCFO/FFIS	400	0.24	
NFC Subject Matter Expert	OCFO/NFC	244	0.15	
NITC Subject Matter Expert	OCIO/NITC	244	0.15	
Total Required		**9382**	**3.83**	**1.86**

Table 1 Project Resource Matrix

Project Costs

The monthly cost of completing the tasks associated with the project is shown in Table 2. Figures include costs for personnel, associated overhead, travel, and telecommunications equipment/services. Figure 2 graphically represents this information in a project cost curve. This curve represents the spending trend expected as this project plan is completed. Significant expenditures in May and June are related to acquiring the necessary telecommunications equipment and services deemed candidates for support of the FFIS project. The cost estimate for telecommunications equipment and services is $425,000.

Month	Planned Monthly Cost	Planned Cumulative Cost
April	$94,615	$94,615
May	$163,259	$257,874
June	$405,809	$663,683
July	$80,047	$743,730
August	$62,642	$806,372
September	$73,064	$879,436
October	$92,335	$971,771
November	$46,659	$1,018,430

Table 2 Project Cost—Monthly and Cumulative

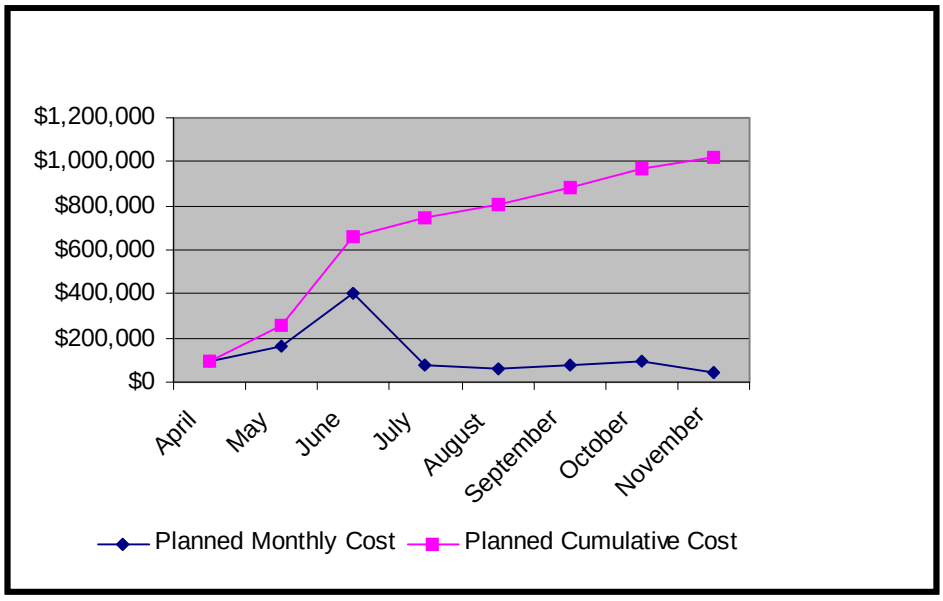


Figure 3 Project Cost—Monthly and Cumulative

The NED shall perform the tasks described in this work statement at the USDA facility in Fort Collins, Colorado (address below) to the maximum extent possible. Travel to other USDA locations will be kept to a minimum. It is anticipated that a maximum of 20 person-trips will be required to support this project. Estimated costs are included in the cost figures identified in Table 2. Travel will be to locations within the contiguous United States and include the following specific locations: Washington D. C., Kansas City, New Orleans, various Agency field office locations, and vendor/contractor sites.

USDA Facility Location: USDA/OCIO/TSO/NED
2625 Redwing Road, Suite 110
Fort Collins, CO 80526
Telephone – (970) 282-2902
Fax – (970) 282-1999

ACCEPTANCE CRITERIA

This Task shall be considered satisfactorily completed upon written acceptance by the FFIS Project Team of the final deliverable.

CONTACTS

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REFERENCE DOCUMENTATION

Memorandum of Understanding between the Chief Information Officer and the Chief Financial Officer of the USDA, March 1999.

United States Department of Agriculture, *Network Design Process, Issue 1.1*, August 1997